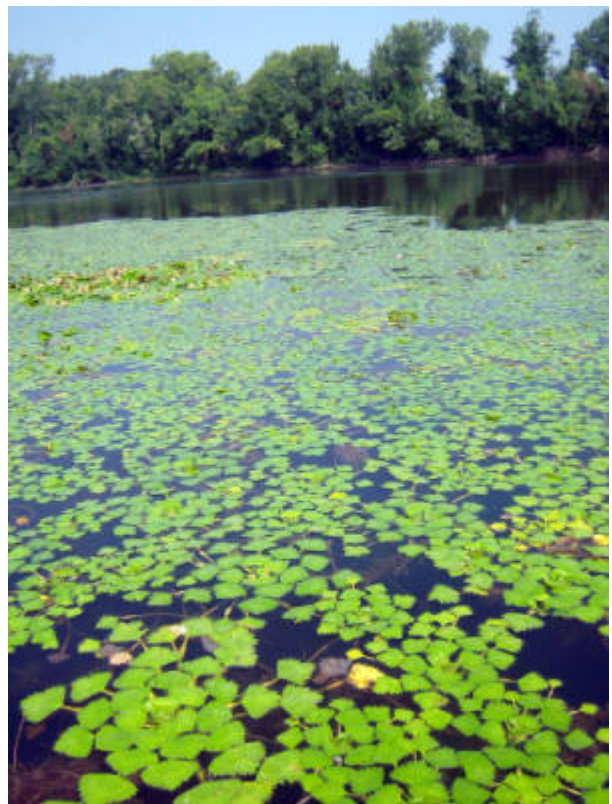

Assessing Capacity for Aquatic Invasive Species Outreach in Recreational Communities



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EXECUTIVE SUMMARY

It is well-established that the actions of recreational resource users, such as anglers and boaters, can lead to the spread of invasive species between aquatic ecosystems. States and provinces in the Great Lakes region have developed outreach efforts to discourage anglers and boaters from taking actions that can contribute to this spread. These efforts focus on preventing the movement of fish between bodies of water, proper disposal of fish carcasses and byproducts, removal of mud, plants, and animals from gear, boats, motors, and trailers, and draining and disinfecting live wells, bilges, and bait tanks.

The degree to which these communication efforts succeed depends in part on the agencies and organizations that become involved and their capacity for outreach work. Lauber et al. (2014) assessed capacity for AIS outreach work in the Lake Ontario basin, but focused only on those organizations with an explicit focus on preventing the spread of AIS. Many other types of organizations, particularly those working within particular communities, may be in a position to contribute to and extend the capacity of AIS outreach programs, even though invasive species prevention is not one of their primary concerns. These include businesses that cater to recreational users (e.g., marinas and bait stores), managers of land serving as access points to water bodies, and user groups (e.g., angler organizations). These organizations have the potential to expand the capacity of AIS outreach efforts in a number of ways. First, they have contact with many anglers and boaters. Second, they may have resources they could bring to outreach efforts, such as equipment, labor, information or funding. Finally, they may be concerned about the spread of AIS, which would provide motivation for engaging in outreach activities.

In this report, we assess the contributions (and potential contributions) that organizations working at the community level make to AIS outreach programs. We conducted this assessment in four New York State communities with high levels of Great Lakes recreational boating or angling: Alexandria Bay, Oswego, Rochester, and Niagara Falls. Connelly et al. (2014) studied how organizations contribute to AIS outreach capacity across a broad regional level, but we focused on community-level assessments are important for several reasons. First, some organizations may be active at the community level that are not active at the regional level. Second, the set of organizations within a particular community may interact with each other and with many of the same recreational users, which could help to reinforce whatever contributions to AIS outreach they may make. Finally, it is likely easier to intervene and build capacity in particular communities (rather than regionally) because communities are geographically confined and rely on common communication networks. Capacity-building efforts, therefore, may generate greater return if they focus on particular communities with high levels of resource use.

In the four communities we selected, we assessed the characteristics of community-based organizations that influenced their capacity to contribute to AIS outreach programs, including:

- The amount of contact that they had with recreational users;
- The resources they had that could contribute to AIS outreach objectives;
- Their concern about AIS; and
- The interactions they had with other community-based and regional organizations.

We targeted organizations likely to have contact with boaters and anglers. These organizations included:

- Boating facilities (marinas, state and local parks, and other locations which boaters could use to gain access to Lake Ontario);
- Bait dealers and fishing supply stores;
- Boating and angling organizations (fishing clubs, yacht clubs, and other organizations likely to have members that were anglers or boaters);
- Environmental nongovernmental organizations (voluntary organizations concerned about the environment, and AIS in particular);
- Local government offices or agencies with concerns about AIS.

In each community, we attempted to identify all of the organizations in the above categories by using key informants with knowledge of these communities, government records (e.g., the State of New York maintains a list of licensed bait dealers), and internet searches. We collected information from representatives of each of these organizations using two methods:

- **Telephone or in-person interviews.** We attempted to conduct brief, standardized interviews with representatives of each organization identified. These interviews collected data on the ways in which each organization contributed to AIS outreach and characteristics of these organizations that contributed to their capacity to respond.
- **Web-based survey.** We conducted a survey of the same individuals whom we interviewed. The survey was designed to gather information on the interactions between each organization and other organizations within their community and state or regional organizations concerned about the spread of AIS.

The results show that community-based organizations in Alexandria Bay, Rochester, Oswego, and Niagara Falls, NY have considerable contact with boaters and anglers, who are important targets of AIS outreach campaigns. Boating facilities, bait dealers, and fishing tackle stores in particular have contact with many recreational users. Many of these organizations already communicate in some ways about how to prevent the spread of AIS, but for most organizations, these efforts are limited. Many of them are concerned about AIS and willing to do more to reach out to boaters and anglers. Community-based organizations, therefore, may represent considerable underutilized capacity for AIS outreach to recreational users.

Several factors are holding back these organizations from doing more to communicate about AIS. They have little expertise with AIS, and they do not know who to contact to get more information or educational materials that they can distribute. Because they have other demands on their time, they are unlikely to try to fill these gaps themselves. Rather, they depend on other actors with expertise in AIS to reach out to them and provide them with ways to get the information and materials they need. Many community-based organizations were interested in obtaining more brochures or pamphlets to distribute, or posters to display. Some were interested in making greater contributions, however, such as marinas that were willing to host watercraft stewards or provide boat washing facilities. Some boating and angling organizations were interested in hosting speakers or workshops.

Building the capacity of community-based organizations in these four communities to contribute to AIS outreach may be cost-effective. However, each of these communities has unique characteristics and, therefore, the same approach to capacity-building may not work in all of them. Each community has different numbers and types of community-based organizations, different degrees of willingness to contribute to AIS outreach, and different patterns of interaction between the organizations within the community. For example:

- Alexandria Bay organizations were heavily dominated by marinas, but had local government and a local environmental organization that had high interest in AIS prevention. Connections between local organizations and external organizations were not strong, but connections among local organizations were frequent with particular organizations in contact with many other local organizations.
- Rochester had many boating facilities, bait dealers, and fishing tackle stores. Two-thirds of the boating facilities had boat-cleaning capabilities, which can alleviate one of the major constraints on cleaning boats. Relatively few of these facilities, on the other hand, communicated with their customers about AIS prevention. Organizations in Rochester were more likely to have contact with external organizations than were the organizations in Alexandria Bay, but less likely to have contact with other organizations within the community.
- Oswego had fewer organizations than either Alexandria Bay or Rochester, but representatives of many of these organizations (including boating facilities, bait dealers, and boating and angler organizations) responded to our survey. Many expressed moderate or strong concern about AIS, took action to communicate with recreational users about AIS prevention, and were willing to do more.
- Organizations in Niagara Falls were least likely to respond to our survey either because of lack of interest or for other reasons. Neither of the boating facilities we heard from had seasonal slips or transient berths, which can provide opportunities for contact with many boaters; they were limited to boat launch ramps. The boating organization we reached had hundreds of members, but the organizations members were reported to have little interest in AIS. We identified few opportunities for reaching recreational users in Niagara Falls.

Building capacity for AIS outreach in these communities would likely involve input from external organizations in both cases, but the roles played by these organizations might differ. In Alexandria Bay, a stronger local network could play a bigger role in disseminating information and resources than it could in Rochester. In Oswego, the relatively small number of relevant organizations with contact with recreational users might make it easier for external organizations to work with many of them. The approach needed in Niagara Falls might involve more initial work cultivating contacts and interest among local organizations, since few of these responded to our survey. The types of information and resources distributed would vary based on the ways in which the organizations in each community are willing to contribute.

This research not only demonstrates the ways that community-based organizations could contribute to the capacity of AIS outreach programs in recreational communities, but also points to the value of an individualized assessment of community capacity in determining how to best

take advantage of these potential contributions. Further enhancing the capacity of community-based organizations may pose some challenges because it would largely depend on external organizations finding ways to address these organizations' needs. Future work could evaluate possible strategies for building local capacity for AIS outreach in communities with characteristics that differed from those in our study.

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BACKGROUND

It is well-established that the actions of recreational resource users, such as anglers and boaters, can lead to the spread of invasive species between aquatic ecosystems. States and provinces in the Great Lakes region have developed outreach efforts to discourage anglers and boaters from taking actions that can contribute to this spread. These efforts focus on preventing the movement of fish between bodies of water, proper disposal of fish carcasses and byproducts, removal of mud, plants, and animals from gear, boats, motors, and trailers, and draining and disinfecting live wells, bilges, and bait tanks.

Numerous agencies and organizations are directly involved in this outreach work. Lauber et al. (2014) characterized the activities of a variety of types of organizations with aquatic invasive species (AIS) outreach programs in the Lake Ontario basin. These organizations include state and provincial fish and wildlife agencies and parks agencies, New York Sea Grant, extension organizations, local government, federal government, environmental nongovernmental organizations, and others.

Outreach targeting boaters and anglers focuses on messages about cleaning equipment before moving it between water bodies and about use and disposal of bait. Common messages about cleaning equipment include:

- Inspect fishing or boating equipment.
- Remove material before transporting fishing or boating equipment.
- Drain all water holding compartments.
- Dry all fishing and boating equipment before use in another water body.
- Disinfect or rinse with hot water anything that came into contact with water before reuse.

Common messages about baitfish include recommendations to dispose of unwanted baitfish in the trash or on dry land or to release them into the body of water in which they were caught. Anglers are encouraged NOT to release them in a body of water other than the one in which they were caught.

The degree to which these communication efforts succeed depends in part on the agencies and organizations that become involved and their capacity for outreach work. Lauber et al. (2014) reported that capacity for AIS outreach work in the Lake Ontario basin was enhanced by some factors and limited by others. The primary factors influencing capacity included:

- Funding to support outreach programs;
- The number of staff available to contribute to outreach and their areas of expertise;
- Access to information about AIS and how recreational users contribute to their spread;
- Support from upper-level administrators within organizations with outreach programs;
- Availability of outreach materials;
- Regulations requiring behaviors advocated in AIS outreach program; and
- Networks of and interactions between organizations working on AIS outreach.

Lauber et al.'s (2014) assessment of capacity focused only on those organizations with an explicit focus on preventing the spread of AIS. Many other types of organizations, however, may be in a position to contribute to and extend the capacity of AIS outreach programs, even though invasive species prevention is not one of their primary concerns. These include businesses that cater to recreational users (e.g., marinas and bait stores), managers of land serving as access points to water bodies, and user groups (e.g., angler organizations). These organizations have the potential to expand the capacity of AIS outreach efforts in a number of ways. First, they have contact with many anglers and boaters. Second, they may have resources they could bring to outreach efforts, such as equipment, labor, information or funding. Finally, they may be concerned about the spread of AIS, which would provide motivation for engaging in outreach activities.

In an effort to assess the contributions of organizations such as these to AIS outreach capacity, Connelly et al. (2014) surveyed boating facilities, bait dealers, and boating and angling organizations in the U.S. portion of the Lake Ontario basin. She found that members of all three groups communicate to some extent with recreational users about AIS and how to prevent their spread. Many of them are concerned about AIS and have the desire and willingness to increase their communication with their customers or members. These groups have the opportunity to be in contact with many recreational users who might not be otherwise reached. Connelly et al. (2014) conclude that organizations who work on AIS outreach could take greater advantage of boating facilities, bait dealers, and boating and angling organizations to increase the distribution of information about AIS prevention.

Connelly et al.'s (2014) study focused on organizations contributing to capacity across a broad regional level. In this report, we describe a similar assessment of capacity at the community level in four selected New York State communities with high levels of Great Lakes recreational boating or angling. Community-level assessments are important for several reasons. First, some organizations may be active at the community level that are not active at the regional level. Second, the set of organizations within a particular community may interact with each other and with many of the same recreational users, which could help to reinforce whatever contributions to AIS outreach they may make. Finally, it is likely easier to intervene and build capacity in particular communities (rather than regionally) because communities are geographically confined and rely on common communication networks. Capacity-building efforts, therefore, may generate greater return if they focus on particular communities with high levels of resource use.

We studied the contributions of community-based organizations to capacity for AIS outreach programs in Alexandria Bay, Oswego, Rochester, and Niagara Falls, NY. These communities have particularly high levels of aquatic recreation in the New York portion of the Lake Ontario basin (Connelly et al. 2002). Our objectives were to:

- Identify any goals and objectives community-based organizations have related to invasive species prevention.
- Document actions by these organizations that could influence the behavior of recreational users in a way that could affect the spread of invasive species. These actions could include distribution of information, communication of messages related to invasive

species, promulgation of regulations (for state or local parks), or provision of resources that can aid compliance with regulations and recommendations (such as facilities for cleaning boats).

- Document the characteristics of the organizations that do or could contribute to the capacity of invasive species prevention efforts.
- Identify the ways in which these organizations interact with each other and with any state and regional organizations working on invasive species prevention.

Conceptual Foundation

We designed our data collection and analysis to explore the ways that community level organizations, separately and collectively, contribute to the capacity for AIS outreach to recreational users. Press (1998, p. 29) defined capacity as an “ability to define and respond to problems” – in this case, an ability to respond to the problem of invasive species being spread by recreational resource users.

Based on the literature on stakeholder analysis and capacity building (Mitchell et al., 1997; Lauber et al. 2011), we identified three basic organizational characteristics that could influence the capacity of AIS outreach efforts within communities.

First, the amount of contact an organization has with recreational users influences its ability to contribute to outreach efforts. For example, a marina used by thousands of boaters has greater potential to communicate outreach messages than a marina used by only dozens. An environmental organization that uses multiple means to communicate with its members has greater potential to contribute to outreach than an organization that does not.

Second, organizations may have unique resources that can be used to contribute to the objectives of AIS outreach programs. The importance of resources such as funding and labor are well recognized, but there are other types of resources, too. An anglers’ organization may have considerable expertise and information on AIS and how they are spread. A marina may have facilities, such as boat-washing equipment, which can be used to help carry out some of the recommendations promulgated by AIS outreach programs.

Finally, the level of concern that an organization and its members or staff has about AIS can influence their willingness to contribute to AIS outreach efforts. These concerns may be of a variety of types. Boating access points may be concerned about the threat posed locally by invasive plants, which may make their facilities unusable. Angler organizations may be concerned about the impacts of AIS on the quality of the fishery. Businesses catering to recreational users may be concerned about lost business if AIS affect local resources. Any of these concerns may increase the likelihood that organizations will willingly communicate AIS outreach messages.

In addition, past work has shown that connections and interactions between organizations (such as the set of community-based organizations in a particular community) can contribute to collective capacity. Interactions can lead to the sharing of resources (such as information or equipment) and greater consistency in outreach messages.

In the four communities we selected, we assessed the characteristics of community-based organizations that influenced their capacity to contribute to AIS outreach programs, including:

- The amount of contact that they had with recreational users;
- The resources they had that could contribute to AIS outreach objectives;
- Their concern about AIS; and
- The frequency of interactions they had with other community-based and regional organizations.

METHODS

We collected data from community-based organizations in Alexandria Bay, Oswego, Rochester, and Niagara Falls, NY. We targeted organizations likely to have contact with boaters and anglers. These organizations included:

- Boating facilities (marinas, state and local parks, and other locations which boaters could use to gain access to Lake Ontario);
- Bait dealers and fishing supply stores;
- Boating and angling organizations (fishing clubs, yacht clubs, and other organizations likely to have members that were anglers or boaters);
- Environmental nongovernmental organizations (voluntary organizations concerned about the environment, and AIS in particular);
- Local government offices or agencies with concerns about AIS.

In each community, we attempted to identify all of the organizations in each of the above categories using key informants with knowledge of these communities, government records (e.g., the State of New York maintains a list of licensed bait dealers), and internet searches. We collected information from representatives of each of these organizations using two methods:

- **Telephone or in-person interviews.** We attempted to conduct brief, standardized interviews with representatives of each organization identified. These interviews collected data on the ways in which each organization contributed to AIS outreach and characteristics of these organizations that contributed to their capacity to respond (Appendix A).
- **Web-based survey.** We conducted a survey of the same individuals whom we interviewed. The survey was designed to gather information on the interactions between each organization and other organizations within their community and state or regional organizations concerned about the spread of AIS (Appendix B).

All research procedures were approved by Cornell University's Institutional Review Board for Human Participants (protocol ID# 1004001374).

Telephone/In-Person Interviews

We attempted to contact a representative of each organization identified a minimum of four times. For most organizations, we attempted to contact the owner, manager, or president. For local government, we attempted to contact an official with the branch of local government most likely to be interested in aquatic invasive species. Once contact was made, questions in the telephone/in-person interviews were asked to:

- Document actions by these organizations, if any, that could influence the behavior of recreational users in a way that could influence the spread of invasive species.
- Document the characteristics of the organizations that do or could potentially contribute to the capacity of invasive species prevention efforts including:
 - Contact – connections with recreational users.
 - Resources – funding, equipment, facilities, information, labor, or other types of resources.
 - Concern – degree of attention devoted to invasive species prevention and level of concern about invasive species prevention efforts.
- Identify whether and how the organizations interact with any of the state and regional organizations working on invasive species prevention (identified during the first phase of our research).

Responses were compiled and analyzed using IBM SPSS Statistics 20.

Web-based Survey

We conducted a standardized, web-based survey of the individuals interviewed during the previous phase to assess how frequently they interacted with other organizations in their community. During the telephone and in-person interviews, we notified respondents that this survey would be taking place in the future and asked if they were willing to participate in it.

The survey questions were designed to determine how frequently each organization interacted with the other organizations in their community. Respondents were asked “During the past five years, how often have you interacted with individuals in each of the following organizations (for any reason)?” Answer choices included never, rarely (no more than once a year), sometimes (several times a year), frequently (at least once a month), very frequently (at least once a week).

To begin the survey, individuals were emailed a link to a web-based questionnaire. Individuals who did not respond to the first request received up to three additional requests to complete the questionnaire by e-mail. The web-based survey instrument was programmed and administered using Qualtrics (Qualtrics Labs Inc. 2005), which provides a means of soliciting participation in a survey via email and recording responses. Qualtrics assigns each individual a unique web link to prevent individuals outside our study population from participating in the survey and prevent access to survey data by anyone other than the research team.

We had intended to analyze the data using standard social network analysis procedures available in UCINET 6, a software package specifically designed for conducting social network analyses

(Borgatti et al. 2002). However, for most social network analyses to be meaningful, data from all or nearly all members of a population of interest are required. The response rates we obtained were not sufficient for these analyses. Consequently, we opted instead to present summary data describing how frequently organizations within each community communicated with other types of organizations.

RESULTS

The results are presented by community.

Alexandria Bay

We identified a total of 31 relevant organizations in Alexandria Bay (Table 1). The vast majority of these (26) were boating facilities. Twenty-six of the 31 organizations participated in our telephone/in-person interviews (84% response rate). Nineteen of the 26 organizations we contacted agreed to participate in our web-based social network survey, and 9 of these organizations actually completed the questionnaire (47% response rate)

Table 1. Characteristics of Alexandria Bay organizations participating in study.

	Organizations Identified	Participated in Interviews	Participated in Web-based Survey
Boating Facilities	26	23	7
Boating and angler organizations	1	0	0
Bait dealers	1	1	0
Environmental NGOs	2	1	1
Local government	1	1	1
Total	31	26	9

Boating Facilities

Boating Facility Characteristics and Contact with Recreational Users. Thirteen of the 23 boating facilities had seasonal slips. The number of seasonal slips at all boating facilities ranged from 0 to 180. The number of transient berths ranged from 0 to 20. Combining slips and transient berths into a single measure of boat capacity, we found boating facilities had between 0 and 192 slips, with a median of 5 slips. The facilities we interviewed had 796 slips altogether. If we assume that we identified the full population of boating facilities in Alexandria Bay, and those facilities we were unable to reach have the same mean number of slips as those we did reach, the total number of slips available at boating facilities in Alexandria Bay would be 948. These facilities, therefore, have contact with numerous boaters. Ten of the 23 facilities also had a boat launch ramp. Eight of these 10 had just one ramp.

Resources for AIS Prevention. Some facilities provide equipment that boaters can use to wash their boats and, therefore, follow recommendations about how to prevent the spread of AIS. In Alexandria Bay, fewer than half (9 of 23) of the boating facilities had such equipment. Many outreach programs recommend using hot water, power washing, or disinfectant to clean boats and equipment effectively. Only 4 of the facilities in Alexandria Bay had hot water, 3 had power washing facilities, and 2 had disinfectant available.

About half (11) of the facilities provided a way for boaters or anglers to dispose of mud, plants, or animals that might be on their equipment before transporting it – another common recommendation in AIS outreach programs. About one-third (8) provided a way to dispose of unwanted baitfish. In both cases, garbage cans or dumpsters were the most frequently mentioned ways to dispose of materials.

Only 2 of the 23 facilities sold baitfish. One of these facilities sold bait caught in the Lake Ontario basin or St. Lawrence River, and the other did not. Because anglers are encouraged not to move bait from one body of water to another, facilities that sell bait from the Lake Ontario basin or St. Lawrence River make it easier for anglers to comply with baitfish recommendations. However, bait dealers can also sell certified baitfish, which eliminates the concern with baitfish spreading disease and AIS.

Communication with Boaters and Anglers. Only a minority of the boating facilities (9 out of 23) communicated with recreational users in some way about how to prevent the spread of invasive species. These facilities tended to have fewer slips (and, therefore, lower total contact with boaters) than the facilities that did not communicate with users. The total number of boat slips in the facilities communicating with users was 103 (out of the 796 slips in all of the facilities that responded to our survey). Given that we estimated 948 total slips in Alexandria Bay, an estimated 123 slips (or 13% of the total) are in facilities that communicate with users.

The means of communicating with users varied. Six of the 9 facilities had brochures or pamphlets available. Six had staff who gave advice to people in person. Two of the facilities had signs posted telling people about the actions they could take. One facility had a watercraft steward who communicated with customers.

Representatives of the vast majority of the boating facilities (19 out of 23) had heard the phrase “Stop Aquatic Hitchhikers!” and so had at least some familiarity with this outreach campaign.

Concern about AIS. Staff in the majority of the boating facilities (13 out of 23) said they were moderately or very concerned about having AIS in local waters. Only one facility reported no concern about AIS. Most of the concerns had to do with the potential for impacts on recreational fishing. Most facilities had concerns about specific AIS. The most common AIS of concern were round gobies and zebra or quagga mussels.

Representatives of a majority of the facilities (12 of 23) said that it was moderately or very important for them to educate their users about what they could do to prevent the spread of AIS. Nineteen representatives said they would like to do more at their facility to educate users about

AIS and how to prevent their spread. Those interested in doing more represent an estimated 793 of the 948 boating slips in the basin (84% of the total).

Nearly all of these facilities (17 of the 23) were interested in having more signs posted and more brochures available for their users. Six wanted to have (or have more) boat washing facilities. Five were interested in having (or having more) watercraft stewards.

Staff of the facilities indicated a number of reasons why they were not currently doing more. The most common of these reasons were:

- They did not know who to contact for materials (12 of 23 facilities).
- They did not have enough time (8 facilities).
- They did not have space for boat washing facilities (8 facilities).
- They did not know enough about AIS (6 facilities).
- They did not have enough money (5 facilities).

Other Types of Organizations

Only 3 other organizations besides boating facilities (out of 5 identified) responded to our survey in Alexandria Bay: one bait dealer, one environmental nongovernmental organization, and one local government official.

Bait Dealer. The bait dealer sold bait both wholesale and retail and said that it served “thousands” of customers each year. This bait dealer, therefore, has considerable contact with recreational anglers. The dealer did not catch the bait in the Lake Ontario basin or St. Lawrence River or buy it from someone who did, but may or may not have been selling certified bait. This business was “very concerned” about AIS in local waters – particularly about the potential effects of AIS on recreational fishing. It had at least some familiarity with the “Stop Aquatic Hitchhikers!” campaign and had signs posted about how to prevent the spread of AIS. This bait dealer considered it “very important” to educate its customers about how to prevent the spread of AIS. The dealer wanted to do more to educate its customers about how to prevent the spread of AIS. This business was interested in having more signs and brochures for its customers. The primary factor holding it back from doing more was a lack of staff.

Environmental Nongovernmental Organization. The environmental NGO had extensive contact with individuals in the area. It had 1,000 members, 3,400 people on its email list, 3,200 friends on Facebook, and 700 followers on Twitter. Its representative was very concerned about the presence of AIS in local waters, particularly the effects on fish and native species, and interference with the food web. He was familiar with the phrase “Stop Aquatic Hitchhikers!”

The organization did not currently offer advice to recreational users about how to prevent the spread of AIS, but its representative was interested in doing more to educate people. In particular, the organization was interested in having information to share with others in the form of brochures or pamphlets. The primary factors holding it back was a lack of time and money. Its representative could envision serving as a clearinghouse for distributing information locally and helping to coordinate action to educate recreational users about preventing the spread of AIS.

Local Government. The local government official interviewed was very concerned about the presence of AIS in local water – particularly Eurasian watermilfoil. He reported that local government did not currently educate residents about how to prevent the spread of AIS, but he would like to do so. In particular, he would like to make more information available to share, more signs available for posting at key access points, and more boat stewards to educate recreational users at access points. He indicated that the primary constraints on local government were time and money, but that they were open to working with other organizations on the issue.

Social Networks

Nine organizations in Alexandria Bay participated in the web-based social network survey. We calculated the mean frequency with which they communicated with 6 types of organizations about which they were asked in the survey: boating facilities in Alexandria Bay, bait dealers and fishing supply stores in Alexandria Bay, boating and angler organizations in Alexandria Bay, environmental nongovernmental organizations in Alexandria Bay, local government officials, and organizations external to Alexandria Bay (state agencies, New York Sea Grant, and Cornell Cooperative Extension) (Table 2).

Table 2. Frequency of communication of Alexandria Bay community-based organizations with other types of organizations (1=never, 2=no more than once a year, 3= several times a year, 4=at least once a month, 5=at least once a week).

	Mean Communication Frequency
Bait dealers and fishing supply stores	3.6
Local government	3.4
Boating Facilities	2.2
Environmental NGOs	2.1
External organizations	1.9
Boating and angler organizations	1.0

Organizations in Alexandria Bay were most likely to communicate with the one local bait dealer about which they were asked or with local government. They are in contact with external organizations no more than once a year on average. Although they are in contact with local boating facilities infrequently on average, there are 5 specific local boating facilities that they are in contact with between several times a year and once a month on average.

Rochester

We identified a total of 33 relevant organizations in Rochester (Table 3). The majority of these (21) were boating facilities, but we also identified 8 bait dealers and 4 boating or angling organizations. Twenty-eight of the 33 organizations participated in our telephone/in-person interviews (85% response rate). Seventeen of the 28 organizations we contacted agreed to participate in our web-based social network survey, and 8 of these organizations actually responded (29% response rate).

Table 3. Characteristics of Rochester organizations participating in study.

	Organizations Identified	Organizations Responding	Participated in Web-based Survey
Boating Facilities	21	17	6
Boating and angler organizations	4	4	0
Bait dealers	8	7	2
Environmental NGOs	0	0	0
Local government	0	0	0
Total	33	28	8

Boating Facilities

Boating Facility Characteristics and Contact with Recreational Users. Ten of the 17 boating facilities had seasonal slips. The number of seasonal slips at all boating facilities ranged from 0 to 300. Facilities also had transient berths that ranged from 0 to 8. Combining slips and transient berths into a single measure of boat capacity, we found boating facilities had between 0 and 300 slips, with a median of 20 slips. The facilities we interviewed had 1,768 slips in total. If we assume that we identified the full population of boating facilities in Rochester, and those facilities we were unable to reach have the same mean number of slips as those we did reach, the total number of slips available at boating facilities in Rochester would be 2,183. These facilities, therefore, have contact with numerous boaters. Eleven of the 17 facilities also had a boat launch ramp. Nine of these 11 had just one ramp.

Resources for AIS Prevention. Nearly two-thirds (11 of 17) of the boating facilities had any boat cleaning capabilities, which would help boaters who were willing to clean their boats. Only 4 of the facilities had power washing capacity, 2 had hot water, and none had disinfectant available.

Only 4 of the facilities provided a way for boaters or anglers to dispose of mud, plants, or animals that might be on their equipment before transporting it. Just 2 provided a way to dispose

of unwanted baitfish. In both cases, garbage cans or dumpsters were the most frequently mentioned ways to dispose of materials.

Only 1 of the 17 facilities reporting selling baitfish. This facility did not sell baitfish from the Lake Ontario basin or St. Lawrence River and did not report whether it was selling certified baitfish.

Communication with Boaters and Anglers. Only 5 of the boating facilities communicated with recreational users in some way about how to prevent the spread of invasive species. The total number of boat slips in the facilities communicating with users was 738 (out of the 1,768 slips in all of the facilities that responded to our survey). Given that we estimated that the total number of slips in Rochester was 2,183, an estimated 911 slips (or 42% of the total) are in facilities that communicate with users.

The means of communicating with users varied. Three of the 17 facilities had staff who gave advice to people in person. Two facilities had brochures or pamphlets available. Two of the facilities had signs posted telling people about the actions they could take. None of the facilities had watercraft stewards who communicated with customers.

Staff members in a majority of the boating facilities (10 out of 17) had heard the phrase “Stop Aquatic Hitchhikers!” and so had at least passing familiarity with this outreach campaign.

Concern about AIS. Representatives of the majority of the boating facilities (11 out of 17) said they were moderately or very concerned about having AIS in local waters. All were at least slightly concerned about AIS. Most of the concerns had to do with the potential for impacts on marinas and boats. Most respondents had concerns about specific AIS. The most common AIS of concern were zebra or quagga mussels.

Staff in a majority of the facilities (11 of 17) said that it was moderately or very important for them to educate their users about what they could do to prevent the spread of AIS. Twelve said they would like to do more at their facility to educate users about AIS and how to prevent their spread. Those interested in doing more represent an estimated 1,553 of the 2,183 boating slips in the basin (71% of the total).

Most of these facilities (10 of the 12) were interested in having more signs posted, and 9 were interested in having more brochures available for their users. Three respondents said they would like to have (or have more) boat washing facilities. One reported wanting to have (or have more) watercraft stewards.

Representatives of the facilities indicated a number of reasons why they were not currently doing more. The most common of these reasons were:

- They did not know who to contact for materials (9 of 17 facilities).
- They did not have enough time (6 facilities).
- They did not know enough about AIS (4 facilities).

Bait Dealers and Fishing Tackle Stores

Business Characteristics and Contact with Anglers. Five of the 7 businesses sold bait. All 5 sold bait retail, and one also sold it wholesale. None offered precise estimates of the number of customers they served, but 4 businesses provided rough estimates of thousands of customers each year. These businesses, therefore, have considerable contact with anglers.

Resources for AIS Prevention. Only one of the 5 businesses selling bait said that their bait came from Lake Ontario Basin or the St. Lawrence River. Given that anglers are encouraged to use bait that comes from the same waters that they are fishing, having the opportunity to buy bait from the Lake Ontario Basin or the St. Lawrence River is helpful for Lake Ontario anglers. However, bait dealers can also sell certified baitfish, which eliminates the concern with baitfish spreading disease and AIS.

Communication with Anglers. Only 3 of the 7 facilities reported whether or not they made information available to anglers about how to prevent the spread of invasive species. Two of these three businesses communicated with anglers in some way. Both of them distributed brochures or pamphlets, and one had staff who gave advice to people in person. All 3 of the businesses had heard the phrase “Stop Aquatic Hitchhikers!” and so had at least passing familiarity with this outreach campaign.

Concern about AIS. Only 3 of the 7 facilities reported their concerns about AIS. The respondent from one of these was very concerned about having AIS in local waters, one was moderately concerned, and one was not at all concerned. Their concerns were related to the impacts of AIS on recreational fishing, and round gobies and zebra or quagga mussels were the specific species of concern.

Representatives of two out of the 3 businesses said that it was moderately or very important for them to educate their users about what they could do to prevent the spread of AIS. One of these businesses reported wanting to do more at their facility to educate users about AIS and how to prevent their spread. This business was interested in posting more signs and having more brochures or pamphlets available to distribute.

The reasons they were currently not doing more included:

- They did not know who to contact for materials.
- They did not have enough time.
- They did not know enough about AIS.

Boating and Angling Organizations

Organization Characteristics and Contact with Recreational Users. Of the four boating and angling organizations we identified in Rochester, 3 were boating organizations and one was a fishing club. The boating organizations were primarily involved in activities like regattas, races, and poker runs. Collectively, the organizations had 950 members.

Communication with Boaters and Anglers. These organizations communicated with their members regularly using newsletters, direct mailings, email, meetings, websites, Facebook, postings at clubhouses, through information accompanying bills, and through logs. Only 1 of the organizations, however, communicated with its members about how to prevent the spread of invasive species. That organization had 350 members. It communicated information about the importance of draining water-holding compartments in equipment and cleaning equipment. It communicated this information primarily through its website and postings at its facility.

Representatives of 2 of the 4 organizations had heard the phrase “Stop Aquatic Hitchhikers!” and so had at least passing familiarity with this outreach campaign.

Concern about AIS. Three of the 4 organizational representatives we spoke with were very concerned about AIS in local waters and the other was slightly concerned. The principal species of concern were hydrilla and other aquatic plants, round gobies, zebra or quagga mussels, and cormorants. The types of concerns ranged from damage to equipment, clogging waterways, and effects on fish populations.

Three of the 4 organizational representatives believed that most or nearly all of their organizations’ members were also very concerned about AIS in local waters and some to all of their members were concerned about their own role in potentially spreading these species. Three of the organizational representatives believed it was moderately to very important to educate their members about how to prevent the spread of AIS.

These 3 representatives also said they would like to do more to educate members. They would like to have more information available to share with their members, have brochures or pamphlets to give to their members, have individuals come speak to their members, and host events or workshops for their members.

All 3 of these representatives said that one of the things preventing them from doing more is that they did not know who to contact for assistance. They were all willing to allow others to share information about AIS prevention with their members.

Social Networks

Eight organizations in Rochester participated in the web-based social network survey. We calculated the mean frequency with which they communicated with 4 types of organizations about which they were asked in the survey: boating facilities in Rochester, bait dealers and fishing supply stores in Rochester, boating and angler organizations in Rochester, and organizations external to Rochester (state agencies, New York Sea Grant, and Cornell Cooperative Extension) (Table 4).

Table 4. Frequency of communication of Rochester community-based organizations with other types of organizations (1=never, 2=no more than once a year, 3= several times a year, 4=at least once a month, 5=at least once a week).

	Mean Communication Frequency
External organizations	2.3
Boating Facilities	1.8
Bait dealers and fishing supply stores	1.7
Boating and angler organizations	1.5

Organizations in Rochester were more likely to communicate with external organizations than with other organizations within Rochester. However, the mean frequency with which they communicated with external organizations was still only a little more than once a year. Bait dealers and fishing tackle stores were most likely to communicate with each other and with the New York State Department of Environmental Conservation.

Oswego

We identified 7 relevant organizations in Oswego (Table 5). All but one of these were boating facilities or bait dealers. Five of the 7 organizations participated in our telephone and in-person interviews (71% response rate). Although 3 organizations agreed to participate in our web-based social network survey, only one actually completed the survey. Therefore, social network survey results are not available for Oswego.

Table 5. Characteristics of Oswego organizations participating in study.

	Organizations Identified	Organizations Responding
Boating Facilities	3	2
Boating and angler organizations	1	1
Bait dealers	3	2
Environmental NGOs	0	0
Local government	0	0
Total	7	5

Boating Facilities

Boating Facility Characteristics and Contact with Recreational Users. Both boating facilities that responded to our survey had seasonal slips. One had 50 seasonal slips and the other 200. They also had transient berths – one with 13 and the other with 30. Combining these into a single measure of boat capacity, we found boating facilities had 293 slips between them. One of these facilities had 2 boat launch ramps and the other had none.

Resources for AIS Prevention. One of the 2 boating facilities had boat cleaning capabilities. It had power washing facilities but not hot water or disinfectant.

Only one of the facilities provided a way for boaters or anglers to dispose of mud, plants, or animals that might be on their equipment before transporting it (a garbage can at the boat ramp), but it did not provide a way to dispose of unwanted baitfish.

Neither facility sold baitfish.

Communication with Boaters and Anglers. Both boating facilities took steps to communicate with recreational users about how to prevent the spread of invasive species indicating that the boaters using the 293 slips in these facilities are exposed to some amount of information about AIS prevention. The status of the 3rd boating facility, which did not respond to this survey, is unknown. One of these facilities posted signs, and the other had staff who talked with users about how to prevent the spread of invasive species. Neither facility distributed brochures or pamphlets or had boat stewards.

A representative of one of the boating facilities had heard the phrase “Stop Aquatic Hitchhikers!” and so had at least passing familiarity with this outreach campaign. The other had not heard this phrase.

Concern about AIS. The respondent from one of the boating facilities said they were very concerned about having AIS in local waters and the other said they were moderately concerned. The AIS of greatest concern were zebra or quagga mussels.

Staff from both facilities said that it was very important for them to educate their users about what they could do to prevent the spread of AIS, and both said they would like to do more than they are currently doing. They were primarily interested in posting more signs and having more pamphlets or brochures to distribute.

The staff members indicated that the reasons why they were not currently doing more were that they did not know who to contact for materials and did not have enough time.

Bait Dealers and Fishing Tackle Stores

Business Characteristics and Contact with Anglers. Only one of the 2 business that responded to the survey sold bait. It sold bait retail, but did not raise or collect baitfish. Neither business provided estimates of the number of customers they served annually.

Resources for AIS Prevention. The business selling bait did not sell bait that came from Lake Ontario Basin or the St. Lawrence River. Given that anglers are encouraged to use bait that comes from the same waters that they are fishing, having the opportunity to buy bait from the Lake Ontario Basin or the St. Lawrence River is helpful for Lake Ontario anglers. However, bait dealers can also sell certified baitfish, which eliminates the concern with baitfish spreading disease and AIS.

Communication with Anglers. Only 1 of the facilities communicated with anglers about how to prevent the spread of invasive species. This business had staff who gave advice to people in person. Both businesses had heard the phrase “Stop Aquatic Hitchhikers!” and so had at least passing familiarity with this outreach campaign.

Concern about AIS. One of the businesses was moderately concerned about having AIS in local waters, and the other was not at all concerned. It was concerned about a range of species including Eurasian watermilfoil, hydrilla, Asian clam, round gobies, and spiny water fleas. Its concerns were related to the impacts of AIS on recreational fishing.

One of the 2 businesses said that it was moderately important for them to educate their users about what they could do to prevent the spread of AIS and said they would like to do more at their facility to educate users about AIS and how to prevent their spread. This business was interested in posting more signs and having more brochures or pamphlets available to distribute. The reasons they were currently not doing more is that they did not have enough time.

Boating and Angling Organizations

Organization Characteristics and Contact with Recreational Users. The organization we identified in Oswego was a boating organization, which was involved in activities like regattas, races, and poker runs. It had 140 members.

Communication with Boaters and Anglers. The organization communicated with its members through its website and through email but did not currently communicate with its members about how to prevent the spread of invasive species. The respondent from this organization was familiar, however, with the phrase “Stop Aquatic Hitchhikers!” and so had at least passing familiarity with this outreach campaign.

Concern about AIS. The respondent was very concerned about AIS in local waters. The principal species of concern were round gobies and zebra or quagga mussels. The specific concerns were damage to equipment and safety.

This organizational representative also believed that nearly all of their organizations’ members were also very concerned about AIS in local waters and at least half were concerned about their own role in potentially spreading these species. The representative believed it was very important to educate their members about how to prevent the spread of AIS and wanted to do more to educate members. The types of things he would like to do is have more information available to share with their members and have brochures or pamphlets to give to their members.

This representative said that the things preventing them from doing more is that they did not know who to contact for assistance and did not know enough about invasive species themselves. They were willing to allow others to share information about AIS prevention with their members.

Niagara Falls

We identified a total of 10 relevant organizations in Niagara Falls (Table 6). Half of these were boating facilities. Three of the 10 organizations responded to our telephone survey (30% response rate). These 3 organizations were not a large enough sample to conduct a social network survey, and so a social network survey was not conducted.

Table 6. Characteristics of Niagara Falls organizations participating in study.

	Organizations Identified	Organizations Responding
Boating Facilities	5	2
Boating and angler organizations	2	1
Bait dealers	2	0
Environmental NGOs	1	0
Local government	0	0
Total	10	3

Boating Facilities

Boating Facility Characteristics and Contact with Recreational Users. Neither of the 2 boating facilities that responded to our survey had seasonal slips or transient berths. Both facilities had boat launch ramps, one with 2 ramps and the other with 3. The number of boaters using these boat ramps is unknown.

Resources for AIS-Prevention. Neither boating facility had boat cleaning capabilities.

Both facilities had disposal stations in which boaters or anglers could dispose of mud, plants, or animals that might be on their equipment before transporting it, but neither provided a way to dispose of unwanted baitfish.

Neither facility sold baitfish.

Communicating with Boaters and Anglers. Both boating facilities used a number of ways to communicate with recreational users about how to prevent the spread of invasive species. Both facilities posted signs, had staff who talked with users about how to prevent the spread of invasive species, distributed brochures or pamphlets, and had watercraft stewards.

Representatives of both boating facilities had heard the phrase “Stop Aquatic Hitchhikers!” and so had at least passing familiarity with this outreach campaign.

Concern about AIS. Respondents from both of the boating facilities said they were very concerned about having AIS in local waters. The AIS of greatest concern included Eurasian watermilfoil, hydrilla, water chestnut, Asian clam, spiny water fleas, and zebra or quagga mussels.

Both respondents said that it was very important for them to educate their users about what they could do to prevent the spread of AIS, and both said they would like to do more than they are currently doing. They were primarily interested in providing more opportunities for boat washing and having more watercraft stewards.

The facilities indicated that the reasons why they were not currently doing more were that they did not have enough funding.

Boating and Angling Organizations

Organization Characteristics and Contact with Recreational Users. The organization we identified was a boating organization, which was involved in activities like regattas, races, and poker runs. It had 345 members.

Information Available to Boaters and Anglers. The organization communicated with its members through its website, a newsletter, meetings, and Facebook, but did not currently communicate with its members about how to prevent the spread of invasive species. The respondent from this organization was familiar, however, with the phrase “Stop Aquatic Hitchhikers!” and so had at least passing familiarity with this outreach campaign.

Concern about AIS. The respondent was moderately concerned about AIS in local waters. The principal species of concern were zebra or quagga mussels. The specific concerns were mussels covering surfaces and safety.

This organizational representative also believed that very few or none of their organizations’ members were concerned about AIS in local waters and very few or none were concerned about their own role in potentially spreading these species. This representative believed it was moderately important to educate their members about how to prevent the spread of AIS and wanted to do more to educate members. The types of things he would like to do is have more information available to share with their members, have brochures or pamphlets to give to their members, and host public events or workshops.

This representative said that the things preventing them from doing more is that they did not know who to contact for assistance and did not know enough about invasive species themselves. He was willing to allow others to share information about AIS prevention with their members.

DISCUSSION AND CONCLUSIONS

The results show that community-based organizations in Alexandria Bay, Rochester, Oswego, and Niagara Falls, NY have considerable contact with boaters and anglers, who are important targets of AIS outreach campaigns. Boating facilities, bait dealers, and fishing tackle stores in particular have contact with many recreational users. Many of these organizations already communicate in some ways about how to prevent the spread of AIS, but for most organizations, these efforts are limited. Many are also concerned about AIS and willing to do more to reach out to boaters and anglers. Community-based organizations, therefore, may represent considerable underutilized capacity for AIS outreach to recreational users.

Several factors are holding back these organizations from doing more to communicate about AIS. They have little to no expertise with AIS, and they do not know who to contact to get more information or educational materials that they can distribute. Because they have other demands on their time, they are unlikely to try to fill these gaps themselves. Rather, they are dependent on other actors with expertise in AIS to reach out to them and provide them with ways to get the information and materials they need. Many community-based organizations were interested in obtaining more brochures or pamphlets to distribute, or posters to display. Some were interested in making greater contributions, however, such as marinas that were willing to host watercraft stewards or provide boat washing facilities. Some boating and angling organizations were interested in hosting speakers or workshops.

Building the capacity of community-based organizations in these four communities to contribute to AIS outreach may be cost-effective. These communities are geographically restricted, but have a disproportionately large number of Lake Ontario boaters and anglers. The particular organizations we surveyed served large numbers of these boaters and anglers. Efforts to build capacity in these communities would be able to reach many recreational users without requiring a basin-wide effort.

Our results also show, however, that each of these communities has different characteristics and may, therefore, need a different approach to capacity-building. Each community has different numbers and types of community-based organizations, different degrees of willingness to contribute to AIS outreach, and different patterns of interaction between the organizations within the community. For example:

- Alexandria Bay organizations were heavily dominated by marinas, but had local government and a local environmental organization that had high interest in AIS prevention. Connections between local organizations and external organizations were not strong, but connections among local organizations were frequent with particular organizations in contact with many other local organizations.
- Rochester had many boating facilities, bait dealers, and fishing tackle stores. Two-thirds of the boating facilities had boat-cleaning capabilities, which can alleviate one of the major constraints on cleaning boats. Relatively few of these facilities, on the other hand, communicated with their customers about AIS prevention. Organizations in Rochester were more likely to have contact with external organizations than were the organizations in Alexandria Bay, but less likely to have contact with other organizations within the community.

- Oswego had fewer organizations than either Alexandria Bay or Rochester, but representatives of many of these organizations (including boating facilities, bait dealers, and boating and angler organizations) responded to our survey. Many expressed moderate or strong concern about AIS, took action to communicate with recreational users about AIS prevention, and were willing to do more.
- Organizations in Niagara Falls were least likely to respond to our survey either because of lack of interest or for other reasons. Neither of the boating facilities we heard from had seasonal slips or transient berths, which can provide opportunities for contact with many boaters; they were limited to boat launch ramps. The boating organization we reached had hundreds of members, but the organizations members were reported to have little interest in AIS. We identified few opportunities for reaching recreational users in Niagara Falls.

Building capacity for AIS outreach in these communities would likely involve input from external organizations in both cases, but the roles played by these organizations might differ. In Alexandria Bay, a stronger local network could play a bigger role in disseminating information and resources than it could in Rochester. In Oswego, the relatively small number of relevant organizations with contact with recreational users might make it easier for external organizations to work with many of them. The approach needed in Niagara Falls might involve more initial work cultivating contacts and interest among local organizations, since few of these responded to our survey. The types of information and resources distributed would vary based on the ways in which the organizations in each community are willing to contribute.

This research not only demonstrates the ways that community-based organizations could contribute to the capacity of AIS outreach programs in recreational communities, but also points to the value of an individualized assessment of community capacity in determining how to best take advantage of these potential contributions. Further enhancing the capacity of community-based organizations may pose some challenges because it would largely depend on external organizations finding ways to address these organizations' needs. Future work could evaluate possible strategies for building local capacity for AIS outreach in communities with different characteristics.

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APPENDIX A: TELEPHONE/IN-PERSON INTERVIEW QUESTIONS

Good (Morning, Afternoon, Evening):

My name is _____ and I work for Cornell University. May I speak to <name, if known> OR owner or manager of <name of organization>?

[IF INDIVIDUAL IS UNAVAILABLE, FIND OUT WHEN IT WOULD BE CONVENIENT TO CALL AGAIN.]

We're conducting a survey of organizations and agencies in Alexandria Bay/Oswego/Rochester/Niagara Falls that might have contact with people who boat and fish. This includes [read appropriate category]:

- a) marina operators,
- b) park managers,
- c) town and county boating facility managers,
- d) bait dealers,
- e) fishing supply stores,
- f) local government officials,
- h) boating and fishing organizations.
- g) environmental organizations,

We're trying to learn more about concerns about aquatic invasive species in Alexandria Bay/Oswego/Rochester/Niagara Falls. By aquatic invasive species, I mean non-native plants and animals such as hydrilla, water chestnut, zebra mussels, and round gobies. We'd like to know whether you and others are concerned about aquatic invasive species. This survey is funded by the EPA. We hope that the information we collect will be helpful to Alexandria Bay/Oswego/Rochester/Niagara Falls and other communities trying to reduce the problems caused by aquatic invasive species. Do you have a few minutes now to answer some questions?

[IF NO, FIND OUT WHEN IT WOULD BE CONVENIENT TO CALL AGAIN. IF THEY SUGGEST ANOTHER PERSON IN THEIR OPERATION/ORGANIZATION WOULD BE BETTER TO SPEAK WITH, GET THEIR CONTACT INFORMATION AND TRY THEM.]

Before we begin, there are a few points I need to cover:

Your identity will be kept completely confidential - none of the information you give me will be released in any way that would allow someone to know your identity.

Your participation in this study is also voluntary. If there is any question that you would prefer not to answer, just tell me and we will go on to the next question.

Group A Questions: Marina operators, state park managers, and town and county boating facility managers

A1. So first off, I'd like to know a little about your facility.

How many boat launch ramps do you have? _____

How many seasonal slips do you have? _____

How many transient (temporary) berths? [OR: What is the average # of boats that could be accommodated in transient space?] _____

Do you have boat cleaning facilities? ____Yes ____No

If yes, do you have:

Hot water? ____Yes ____No

Power washing facilities? ____Yes ____No

Disinfectant available? ____Yes ____No

Where does the water go (after being used to wash the boat)?

(From open-ended answer try to determine if:

_____ Water goes directly back into lake/river

_____ Water goes into some type of sewer/dry well/ filtration system)

Do you have a way for people to dispose of mud, plants or animals that might be on their boating or fishing equipment before they transport the equipment?

____Yes -> Where do they put it? _____

____No

Do you have a way for people to dispose of unwanted baitfish?

____Yes -> Where do they put it? _____

____No

Do you sell baitfish? ____ Yes ____No

If yes, did you catch them in the Lake Ontario Basin or the St. Lawrence River or buy them from someone who caught them in the Lake Ontario Basin or the St.

Lawrence River? ____Yes ____No ____Don't know where they come from

A2. How concerned are you about having aquatic invasive species in local waters? Again when I talk about aquatic invasive species, I mean non-native plants and animals such as hydrilla, water chestnut, zebra mussels, and round gobies. Are you...

_____ Very concerned

_____ Moderately concerned

_____ Slightly concerned

_____ Not at all concerned

A3. Are you concerned about any specific aquatic invasive species that might be in local waters?

____ No

____ Yes -> Which ones? (Don't read list, but check off those mentioned and inquire about those not mentioned)

Plants

- ____ Didymo
- ____ Eurasian watermilfoil
- ____ Hydrilla
- ____ Water chestnut

Animals

- ____ Asian clam
- ____ Round gobies
- ____ Water fleas
- ____ Zebra or quagga mussels

Others

_____ (list ones concerned about)

What are your primary concerns about these species? (Later may try to group answers by whether the concerns are personal vs. to a larger group, whether the concerns are economic, environmental, etc.)

A4. Do you have any signs posted at your facility telling people who boat or fish what actions they can take to prevent the spread of aquatic invasive species?

____ No

____ Yes -> How many signs do you have? ____

Did you develop the signs or do you remember what organization you got the signs from?

____ Developed themselves

_____ (name of organization)

____ Don't recall

A5. Do you have any brochures or pamphlets available at your facility telling people who boat or fish what actions they can take to prevent the spread of aquatic invasive species?

____ No

____ Yes -> About how many do you distribute in a year? ____

What percent of people using your facility for boating or fishing do you think pick up the material? ____%

Do you remember what organization you got the literature from?

_____ (name) ____ Don't recall

A6. Do you or your staff give advice to users who boat or fish about how to prevent the spread of aquatic invasive species?

_____ No

_____ Yes -> There is lots of advice out there about how to prevent the spread of AIS.
Do you tell people to do any of the following things? (Read list and check things they say they do)

_____ Inspect boating and fishing equipment

_____ Remove any visible mud, plants, fish or animals before transporting equipment.

_____ Where to dispose of any material taken off equipment

_____ Where to dispose of unwanted baitfish

_____ Drain all water holding compartments

_____ Dry boats, trailers and all equipment before use in another waterbody.

_____ Disinfect or rinse with hot water anything that came into contact with water, if it cannot be dried before reuse.

_____ Never release plants, fish or animals into a body of water unless they came out of that body of water.

How many people who are boating or fishing do you think you or your staff talk to each year? _____

What % of those who are boating or fishing from your facility do you think that is? _____

A7. Do you have “watercraft [OR: launch or boat] stewards” work at your facility? (If they ask what this means say it is a person who tries to look at boats with their owners and educate them about transporting aquatic invasive species.)

_____ No

_____ Yes -> What organization arranges for them to come to your facility?

What type of activities do they engage in? (e.g., talk to boaters, hand out brochures, help wash boats) _____

A8. Have you ever heard the phrase “Stop Aquatic Hitchhikers?”

_____ No

_____ Yes

A9. Given all of the activities that you have to do at your facility, how important is it that you and your staff educate your users about what they can do to prevent the spread of aquatic invasive species?

- ☐ Very important
- ☐ Moderately important
- ☐ Slightly important
- ☐ Not at all important

A10. Given all the activities that you have to do at your facility, would you like to do more at your facility to educate users about aquatic invasive species or help them prevent the spread of aquatic invasive species?

- ☐ No [SKIP TO A12]
- ☐ Yes ->What would you like to do? (Check things mentioned, but do not read list)
 - ☐ Have (or have more) signs
 - ☐ Have (or have more) brochures or pamphlets to distribute
 - ☐ Have (or have more) boat washing facilities
 - ☐ Have (or have more) watercraft stewards
 - ☐ Other things: _____

A11. What do you think is holding you back from doing the things you'd like to do? (Check things mentioned, but do not read list)

- ☐ Money
 - ☐ for staff
 - ☐ for signs, brochures
 - ☐ for facilities, like boat washing or bait disposal
- ☐ Time (lower priority compared to other things)
- ☐ Don't know enough about invasive species
- ☐ Don't know who to contact for materials
- ☐ Don't have space for boat washing facilities
- ☐ Other reasons: _____

A12. If another organization were able to provide volunteers, materials, or equipment, are there more things you would like to do at your facility [beyond those you've already mentioned] to educate users about aquatic invasive species or help them prevent the spread of aquatic invasive species?

- ☐ No (SKIP TO A13)
- ☐ Yes ->What could others do for you? (Check things mentioned, but do not read list)
 - ☐ Put up signs
 - ☐ Bring/give me brochures to hand out
 - ☐ Provide funding to help me build boat washing facilities
 - ☐ Provide watercraft stewards
 - ☐ Other things: _____

A13. Do you have any interactions with organizations working to prevent the spread of invasive species? Which organizations? (Check things mentioned, but do not read list) How do you interact with them?

_____ NYS Department of Environmental Conservation
How interact? _____

_____ Cornell Cooperative Extension
How interact? _____

_____ New York Sea Grant
How interact? _____

_____ Local government agencies: _____
How interact? _____

_____ Other organizations: _____
How interact? _____

That's all the questions I have today. Thank you very much for taking the time to talk with me. We plan to compile the answers to this survey and share it with organizations involved with the prevention of aquatic invasive species spread in Alexandria Bay/Oswego/Rochester/Niagara Falls.

Within the next few months, we're also going to conduct a short follow up survey by email (or mail, for those who prefer) to find out how much the different businesses and organizations we've been talking with in Alexandria Bay/Oswego/Rochester/Niagara Falls interact with each other typically. We think this followup survey should only take a few minutes to complete. Would you be willing to participate in that?

IF YES: Could I have your email address? [If no email, get a mailing address.]

Thank you again. We hope the information we're gathering will help organizations that are concerned about the spread of aquatic invasive species.

END INTERVIEW

Group B Questions: Bait dealers and fishing tackle stores

B1. So first off, I'd like to know a little about your business.

IF NECESSARY: Do you sell bait?

- ☐ Yes
☐ No (Skip to B1a.)

What type of bait business do you operate? Do you... (Check all that apply.)

- ☐ Sell bait wholesale
☐ Sell bait retail
☐ Raise baitfish
☐ Collect baitfish from public waters

Did you catch them in the Lake Ontario Basin or the St. Lawrence River or buy them from someone who caught them in the Lake Ontario Basin or the St. Lawrence River? ☐ Yes ☐ No ☐ Don't know where they come from

Which of the following types of bait do you sell? (Check all that apply.)

- ☐ Emerald Shiners
☐ Golden Shiners
☐ Fathead Minnows
☐ Suckers
☐ Other fish
☐ Crayfish
☐ Other bait
☐

B1a. About how many customers for bait or fishing supplies do you think you have in a year?

B2. How concerned are you about having aquatic invasive species in local waters? Again when I talk about aquatic invasive species, I mean non-native plants and animals such as hydrilla, water chestnut, zebra mussels, and round gobies. Are you...

- ☐ Very concerned
☐ Moderately concerned
☐ Slightly concerned
☐ Not at all concerned

B3. Are you concerned about any specific aquatic invasive species that might be in local waters?

____ No

____ Yes -> Which ones? (Don't read list, but check off those mentioned and inquire about those not mentioned)

Plants

- ____ Didymo
- ____ Eurasian watermilfoil
- ____ Hydrilla
- ____ Water chestnut

Animals

- ____ Asian clam
- ____ Round gobies
- ____ Water fleas
- ____ Zebra or quagga mussels

Others

_____ (list ones concerned about)

What are your primary concerns with these species? (Later may try to group answers by whether the concerns are personal vs. to a larger group, whether the concerns are economic, environmental, etc.)

B4. Do you have any signs posted at your facility telling people who fish what actions they can take to prevent the spread of aquatic invasive species?

____ No

____ Yes -> How many? ____

Did you develop the signs or do you remember what organization you got the signs from?

____ Developed themselves

_____ (name of organization)

____ Don't recall

B5. Do you have any brochures or pamphlets available at your facility telling people who fish what actions they can take to prevent the spread of aquatic invasive species?

____ No

____ Yes -> About how many do you distribute in a year? ____

What percent of people using your business do you think pick up the material? ____%

Do you remember what organization you got the literature from?

_____ (name) ____ Don't recall

B6. Do you or your staff give advice to your customers about how to prevent the spread of aquatic invasive species?

☐ No

☐ Yes -> There is lots of advice out there about how to prevent the spread of AIS.
Do you tell people to do any of the following things? (Read list and check things they say they do)

☐ Inspect boating and fishing equipment

☐ Remove any visible mud, plants, fish or animals before transporting equipment.

☐ Where to dispose of any material taken off equipment

☐ Where to dispose of unwanted baitfish

☐ Drain all water holding compartments

☐ Dry boats, trailers and all equipment before use in another waterbody.

☐ Disinfect or rinse with hot water anything that came into contact with water, if it cannot be dried before reuse.

☐ Never release plants, fish or animals into a body of water unless they came out of that body of water.

How many of your customers do you think you or your staff talk to each year?

What % of your customers do you think that is?

B7. Have you ever heard the phrase “Stop Aquatic Hitchhikers?”

☐ No

☐ Yes

B8. Given all of the activities that you have to do at your business, how important is it that you and your staff educate your customers about what they can do to prevent the spread of aquatic invasive species?

☐ Very important

☐ Moderately important

☐ Slightly important

☐ Not at all important

B9. Given all the activities that you have to do at your facility, would you like to do more at your facility to educate your customers about aquatic invasive species or help them prevent the spread of aquatic invasive species?

_____ No [SKIP TO B11]

_____ Yes ->What would you like to do? (Check things mentioned, but do not read list)

_____ Have (or have more) signs

_____ Have (or have more) brochures or pamphlets to distribute

_____ Other things: _____

B10. What do you think is holding you back from doing the things you'd like to do? (Check things mentioned, but do not read list)

_____ Money

_____ for staff

_____ for signs, brochures

_____ for facilities, like boat washing or bait disposal

_____ Time (lower priority compared to other things)

_____ Don't know enough about invasive species

_____ Don't know who to contact for materials

_____ Don't have space for boat washing facilities

_____ Other reasons: _____

B11. If another organization were able to provide materials or equipment, are there more things you would like to do at your business [beyond those already mentioned] to educate your customers about aquatic invasive species or help them prevent the spread of aquatic invasive species?

_____ No (SKIP TO B12)

_____ Yes ->What could others do for you? (Check things mentioned, but do not read list)

_____ Put up signs/posters

_____ Bring/give me brochures to hand out

_____ Other things: _____

B12. Do you have any interactions with organizations working to prevent the spread of invasive species? Which organizations? (Check things mentioned, but do not read list) How do you interact with them?

_____ NYS Department of Environmental Conservation
How interact? _____

_____ Cornell Cooperative Extension
How interact? _____

_____ New York Sea Grant
How interact? _____

_____ Local government agencies: _____
How interact? _____

_____ Other organizations: _____
How interact? _____

That's all the questions I have today. Thank you very much for taking the time to talk with me. We plan to compile the answers to this survey and share it with organizations involved with the prevention of aquatic invasive species spread in Alexandria Bay/Oswego/Rochester/Niagara Falls.

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IF YES: Could I have your email address? [If no email, get a mailing address.]

Thank you again. We hope the information we're gathering will help organizations that are concerned about the spread of aquatic invasive species.

END INTERVIEW

Group C Questions: Local government officials

C1. So first off, I'd like to know a little more about your agency's/office's concerns about aquatic invasive species. How concerned is your agency/office about having aquatic invasive species in local waters? Again when I talk about aquatic invasive species, I mean non-native plants and animals such as hydrilla, water chestnut, zebra mussels, and round gobies.

- ☐ Very concerned
- ☐ Moderately concerned
- ☐ Slightly concerned
- ☐ Not at all concerned

C2. Is your agency/office concerned about any specific aquatic invasive species that might be in, or get into, local waters?

- ☐ No
- ☐ Yes -> Which one(s)? (Don't read list, but check off those mentioned and inquire about those not mentioned)

Plants

- ☐ Didymo
- ☐ Eurasian watermilfoil
- ☐ Hydrilla
- ☐ Water chestnut

Animals

- ☐ Asian clam
- ☐ Round gobies
- ☐ Water fleas
- ☐ Zebra or quagga mussels

Others

_____ (list ones concerned about)

What are your agency's/office's primary concerns with these species? (Later may try to group answers by whether the concerns are personal vs. to a larger group, whether the concerns are economic, environmental, etc.)

C3. Does your agency/office give advice to residents and visitors about how to prevent the spread of aquatic invasive species?

☐ No

☐ Yes -> There is lots of advice out there about how to prevent the spread of AIS.
Do you tell people to do any of the following things? (Read list and check things they say they do)

- ☐ Inspect boating and fishing equipment
- ☐ Remove any visible mud, plants, fish or animals before transporting equipment.
- ☐ Where to dispose of any material taken off equipment
- ☐ Where to dispose of unwanted baitfish
- ☐ Drain all water holding compartments
- ☐ Dry boats, trailers and all equipment before use in another waterbody.
- ☐ Disinfect or rinse with hot water anything that came into contact with water, if it cannot be dried before reuse.
- ☐ Never release plants, fish or animals into a body of water unless they came out of that body of water.

What method(s) do you use to communicate advice about preventing the spread of aquatic invasive species? (Check all that are mentioned. Clarify subcategories, if needed.)

- ☐ Newsletter
 - ☐ with information that you wrote
 - ☐ with information taken from another source
- ☐ Website
 - ☐ with the information on your website
 - ☐ With a link to another website that has the information
- ☐ Direct mailings
 - ☐ with information that you wrote
 - ☐ with information taken from another source
- ☐ Workshops
 - ☐ using information that you developed
 - ☐ using information taken from another source
- ☐ Meetings of community members
 - ☐ using information that you developed
 - ☐ using information taken from another source
- ☐ Personal contact with community members
- ☐ Other: _____

C4. Have you ever heard the phrase “Stop Aquatic Hitchhikers?”

☐ No

☐ Yes

C5. What proportion of local residents and visitors do you think have ever heard of aquatic invasive species getting into local waters?

- ☐ Almost Everyone
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Very few or none (SKIP TO Question C8)

C6. Of those who have heard about aquatic invasive species, what proportion do you think are concerned about having aquatic invasive species in local waters?

- ☐ Almost Everyone
- ☐ Most
- ☐ At least half
- ☐ Some
- ☐ Very few or none

C7. Of those who have heard about aquatic invasive species, what proportion do you think are concerned about their personal role in the spread of aquatic invasive species?

- ☐ Almost Everyone
- ☐ Most
- ☐ At least half
- ☐ Some
- ☐ Very few or none

C8. Given all of the responsibilities of your agency/office, how important is it that it educates local residents and visitors about what they can do to prevent the spread of aquatic invasive species?

- ☐ Very important
- ☐ Moderately important
- ☐ Slightly important
- ☐ Not at all important

C9. Given all of the responsibilities of your agency/office, would you like to do more to educate local residents and visitors or other organizations about aquatic invasive species or help them prevent the spread of aquatic invasive species?

_____ No -> (SKIP TO C11)

_____ Yes ->What would you like to do? (Check things mentioned, but do not read list)

_____ Have (or have more) communication messages to share with local residents and visitors

_____ Have (or have more) brochures or pamphlets to distribute to local residents and visitors

_____ Hold public educational events/workshops

_____ Other things: _____

C10. What do you think is holding you back from doing those things? (Check things mentioned, but do not read list)

_____ Money

_____ for staff

_____ for signs, brochures

_____ Time (lower priority compared to other things)

_____ Don't know enough about invasive species

_____ Don't know who to contact for materials or workshop presentations

_____ Not everyone in leadership positions shares my concerns about aquatic invasive species

_____ Other reasons: _____

C11. If another organization were able to provide volunteers, materials, or equipment, are there more things you would like to do [beyond those you've already mentioned] to educate local residents and visitors or other organizations about aquatic invasive species or help them prevent the spread of aquatic invasive species?

_____ No (SKIP TO C12)

_____ Yes ->What could others do for you? (Check things mentioned, but do not read list)

_____ Put up signs

_____ Bring/give me brochures to hand out

_____ Provide funding to help me build boat washing facilities

_____ Provide watercraft stewards

_____ Other things: _____

C12. Do you have any interactions with organizations working to prevent the spread of invasive species? Which organizations? (Check things mentioned, but do not read list) How do you interact with them?

_____ NYS Department of Environmental Conservation
How interact? _____

_____ Cornell Cooperative Extension
How interact? _____

_____ New York Sea Grant
How interact? _____

_____ Local government agencies: _____
How interact? _____

_____ Other organizations: _____
How interact? _____

That's all the questions I have today. Thank you very much for taking the time to talk with me. We plan to compile the answers to this survey and share it with organizations involved with the prevention of aquatic invasive species spread in Alexandria Bay/Oswego/Rochester/Niagara Falls.

Within the next few months, we're also going to conduct a short follow up survey by email (or mail, for those who prefer) to find out how much the different businesses and organizations we've been talking with in Alexandria Bay/Oswego/Rochester/Niagara Falls interact with each other typically. We think this followup survey should only take a few minutes to complete. Would you be willing to participate in that?

IF YES: Could I have your email address? [If no email, get a mailing address.]

Thank you again. We hope the information we're gathering will help organizations that are concerned about the spread of aquatic invasive species.

END INTERVIEW

Group D Questions: Boating and angler organizations

D1. So first off, I'd like to know a little more about your organization.

How many members do you have in your organization? _____

For boating organizations, are you involved in:

- _____ Boat shows
- _____ Boating or sailing regattas, races, poker runs
- _____ Any other activities? _____

For fishing organizations, are you involved in:

- _____ Sportsman's shows or expos
- _____ Fishing tournaments
- _____ Fishing demonstrations
- _____ Any other activities? _____

How do you communicate with your members? (Don't read list, but check off methods mentioned and inquire about those not mentioned)

- _____ Newsletter
- _____ Website
- _____ Direct mailings
- _____ Workshops
- _____ Meetings of the organization members
- _____ Facebook
- _____ Twitter
- _____ Other: _____

D2. How concerned is your organization about having aquatic invasive species in local waters? Again when I talk about aquatic invasive species, I mean non-native plants and animals such as hydrilla, water chestnut, zebra mussels, and round gobies.

- _____ Very concerned
- _____ Moderately concerned
- _____ Slightly concerned
- _____ Not at all concerned

D3. Is your organization concerned about any specific aquatic invasive species that might be in, or get into local waters?

_____ No

_____ Yes -> Which one(s)? (Don't read list, but check off those mentioned and inquire about those not mentioned)

Plants

_____ Didymo

_____ Eurasian watermilfoil

_____ Hydrilla

_____ Water chestnut

Animals

_____ Asian clam

_____ Round gobies

_____ Water fleas

_____ Zebra or quagga mussels

Others

_____ (list ones concerned about)

What are your primary concerns with these species? (Later may try to group answers by whether the concerns are personal vs. to a larger group, whether the concerns are economic, environmental, etc.)

D4. Does your organization give advice to your members about how to prevent the spread of aquatic invasive species?

☐ No

☐ Yes -> There is lots of advice out there about how to prevent the spread of AIS.

Do you tell your members to do any of the following things? (Read list and check things they say they do)

☐ Inspect boating and fishing equipment

☐ Remove any visible mud, plants, fish or animals before transporting equipment.

☐ Where to dispose of any material taken off equipment

☐ Where to dispose of unwanted baitfish

☐ Drain all water holding compartments

☐ Dry boats, trailers and all equipment before use in another waterbody.

☐ Disinfect or rinse with hot water anything that came into contact with water, if it cannot be dried before reuse.

☐ Never release plants, fish or animals into a body of water unless they came out of that body of water.

What method(s) do you use to communicate advice about preventing the spread of AIS?
(Check all that are mentioned. Clarify subcategories, if needed.)

☐ Newsletter

☐ with information that you wrote

☐ with information taken from another source

☐ Website

☐ with the information on your website

☐ With the link to another website that has the information

☐ Direct mailings

☐ with information that you wrote

☐ with information taken from another source

☐ Workshops

☐ using information that you wrote

☐ using information taken from another source

☐ Meetings of the organization members

☐ using information that you wrote

☐ using information taken from another source

☐ Personal contact with members

☐ Other: _____

D5. Have you ever heard the phrase “Stop Aquatic Hitchhikers?”

☐ No

☐ Yes

D6. What proportion of your membership do you think have ever heard of aquatic invasive species getting into local waters?

- ☐ Almost Everyone
- ☐ Most members
- ☐ About half
- ☐ Some members
- ☐ Very few or none (SKIP TO Question D9)

D7. Of those who have heard about aquatic invasive species, what proportion do you think are concerned about having aquatic invasive species in local waters?

- ☐ Almost Everyone
- ☐ Most members
- ☐ At least half
- ☐ Some members
- ☐ Very few or none

D8. Of those who have heard about aquatic invasive species, what proportion do you think are concerned about their personal role in the spread of aquatic invasive species?

- ☐ Almost Everyone
- ☐ Most members
- ☐ At least half
- ☐ Some members
- ☐ Very few or none

D9. Given all of the activities your organization is involved in, how important is it that your organization educates its members about what they can do to prevent the spread of aquatic invasive species?

- ☐ Very important
- ☐ Moderately important
- ☐ Slightly important
- ☐ Not at all important

D10. Given all of the activities your organization is involved in, would you like to do more to educate your members or other organizations about aquatic invasive species or help them prevent the spread of aquatic invasive species?

_____ No -> (SKIP TO D12)

_____ Yes -> What would you like to do? (Check things mentioned, but do not read list)

_____ Have (or have more) communication messages to share with our members

_____ Have (or have more) brochures or pamphlets to distribute to our members

_____ Have (or have more) communication messages to share with others

_____ Have (or have more) brochures or pamphlets to distribute to others

_____ Hold public educational events/workshops

_____ Other things: _____

D11. What do you think is holding you back from doing those things? (Check things mentioned, but do not read list)

_____ Money

_____ for staff

_____ for signs, brochures

_____ Time (lower priority compared to other things)

_____ Don't know enough about invasive species

_____ Don't know who to contact for materials or workshop presentations

_____ Not everyone in leadership positions shares my concerns about aquatic invasive species

_____ Other reasons: _____

D12. Would you be willing to allow others to share advice with your membership about preventing the spread of aquatic invasive species?

_____ No

_____ Yes

D13. Do you have any interactions with organizations working to prevent the spread of invasive species? Which organizations? (Check things mentioned, but do not read list) How do you interact with them?

_____ NYS Department of Environmental Conservation

How interact? _____

_____ Cornell Cooperative Extension

How interact? _____

_____ New York Sea Grant

How interact? _____

_____ Local government agencies: _____

How interact? _____

_____ Other organizations: _____

How interact? _____

That's all the questions I have today. Thank you very much for taking the time to talk with me. We plan to compile the answers to this survey and share it with organizations involved with the prevention of aquatic invasive species spread in Alexandria Bay/Oswego/Rochester/Niagara Falls.

Within the next few months, we're also going to conduct a short follow up survey by email (or mail, for those who prefer) to find out how much the different businesses and organizations we've been talking with in Alexandria Bay/Oswego/Rochester/Niagara Falls interact with each other typically. We think this followup survey should only take a few minutes to complete. Would you be willing to participate in that?

IF YES: Could I have your email address? [If no email, get a mailing address.]

Thank you again. We hope the information we're gathering will help organizations that are concerned about the spread of aquatic invasive species.

END INTERVIEW

Group E Questions: Nongovernmental environmental organizations

E1. So first off, I'd like to know a little more about your organization.

Does your organization have members?

_____ No

_____ Yes

IF YES: How many members do you have in your organization? _____

Are you involved in:

_____ Environmental stewardship activities

_____ Environmental education or outreach

_____ Any other activities? _____

How do you communicate with your members or other interested people? (Don't read list, but check off methods mentioned and inquire about those not mentioned)

_____ Newsletter

_____ Website

_____ Direct mailings

_____ Workshops

_____ Meetings

_____ Facebook

_____ Twitter

_____ Other: _____

E2. How concerned is your organization about having aquatic invasive species in local waters? Again when I talk about aquatic invasive species, I mean non-native plants and animals such as hydrilla, water chestnut, zebra mussels, and round gobies.

_____ Very concerned

_____ Moderately concerned

_____ Slightly concerned

_____ Not at all concerned

E3. Is your organization concerned about any specific aquatic invasive species that might be in, or get into local waters?

_____ No

_____ Yes -> Which one(s)? (Don't read list, but check off those mentioned and inquire about those not mentioned)

Plants

_____ Didymo

_____ Eurasian watermilfoil

_____ Hydrilla

_____ Water chestnut

Animals

_____ Asian clam

_____ Round gobies

_____ Water fleas

_____ Zebra or quagga mussels

Others

_____ (list ones concerned about)

What are your primary concerns with these species? (Later may try to group answers by whether the concerns are personal vs. to a larger group, whether the concerns are economic, environmental, etc.)

E4. Does your organization give advice about how to prevent the spread of aquatic invasive species?

☐ No

☐ Yes -> There is lots of advice out there about how to prevent the spread of AIS.
Do you tell people to do any of the following things? (Read list and check things they say they do)

- ☐ Inspect boating and fishing equipment
- ☐ Remove any visible mud, plants, fish or animals before transporting equipment.
- ☐ Where to dispose of any material taken off equipment
- ☐ Where to dispose of unwanted baitfish
- ☐ Drain all water holding compartments
- ☐ Dry boats, trailers and all equipment before use in another waterbody.
- ☐ Disinfect or rinse with hot water anything that came into contact with water, if it cannot be dried before reuse.
- ☐ Never release plants, fish or animals into a body of water unless they came out of that body of water.

What method(s) do you use to communicate advice about preventing the spread of AIS?
(Check all that are mentioned. Clarify subcategories, if needed.)

- ☐ Newsletter
 - ☐ with information that you wrote
 - ☐ with information taken from another source
- ☐ Website
 - ☐ with the information on your website
 - ☐ With the link to another website that has the information
- ☐ Direct mailings
 - ☐ with information that you wrote
 - ☐ with information taken from another source
- ☐ Workshops
 - ☐ using information that you wrote
 - ☐ using information taken from another source
- ☐ Meetings of the organization members
 - ☐ using information that you wrote
 - ☐ using information taken from another source
- ☐ Personal contact with members
- ☐ Other: _____

E5. Have you ever heard the phrase “Stop Aquatic Hitchhikers?”

☐ No

☐ Yes

E6. What proportion of local residents and visitors do you think have ever heard of aquatic invasive species getting into local waters?

- ☐ Almost Everyone
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Very few or none (SKIP TO Question E9)

E7. Of those who have heard about aquatic invasive species, what proportion do you think are concerned about having aquatic invasive species in local waters?

- ☐ Almost Everyone
- ☐ Most
- ☐ At least half
- ☐ Some
- ☐ Very few or none

E8. Of those who have heard about aquatic invasive species, what proportion do you think are concerned about their personal role in the spread of aquatic invasive species?

- ☐ Almost Everyone
- ☐ Most
- ☐ At least half
- ☐ Some
- ☐ Very few or none

E9. Given all of the activities your organization is involved in, how important is it that your organization educates local residents and visitors about what they can do to prevent the spread of aquatic invasive species?

- ☐ Very important
- ☐ Moderately important
- ☐ Slightly important
- ☐ Not at all important

E10. Given all of the activities your organization is involved in, would you like to do more to educate local residents and visitors or other organizations about aquatic invasive species or help them prevent the spread of aquatic invasive species?

_____ No -> (SKIP TO E13)

_____ Yes ->What would you like to do? (Check things mentioned, but do not read list)

_____ Have (or have more) communication messages to share with our members

_____ Have (or have more) brochures or pamphlets to distribute to our members

_____ Have (or have more) communication messages to share with others

_____ Have (or have more) brochures or pamphlets to distribute to others

_____ Hold public educational events/workshops

_____ Other things: _____

E11. What do you think is holding you back from doing those things? (Check things mentioned, but do not read list)

_____ Money

_____ for staff

_____ for signs, brochures

_____ Time (lower priority compared to other things)

_____ Don't know enough about invasive species

_____ Don't know who to contact for materials or workshop presentations

_____ Not everyone in leadership positions shares my concerns about aquatic invasive species

_____ Other reasons: _____

E12. If another organization were able to provide volunteers, materials, or equipment, are there more things you would like to do [beyond those you've already mentioned] to educate local residents and visitors or other organizations about aquatic invasive species or help them prevent the spread of aquatic invasive species?

_____ No (SKIP TO E12)

_____ Yes ->What could others do for you? (Check things mentioned, but do not read list)

_____ Put up signs

_____ Bring/give me brochures to hand out

_____ Provide funding to help me build boat washing facilities

_____ Provide watercraft stewards

_____ Other things: _____

E13. Do you have any interactions with organizations working to prevent the spread of invasive species? Which organizations? (Check things mentioned, but do not read list) How do you interact with them?

_____ NYS Department of Environmental Conservation
How interact? _____

_____ Cornell Cooperative Extension
How interact? _____

_____ New York Sea Grant
How interact? _____

_____ Local government agencies: _____
How interact? _____

_____ Other organizations: _____
How interact? _____

That's all the questions I have today. Thank you very much for taking the time to talk with me. We plan to compile the answers to this survey and share it with organizations involved with the prevention of aquatic invasive species spread in Alexandria Bay/Oswego/Rochester/Niagara Falls.

Within the next few months, we're also going to conduct a short follow up survey by email (or mail, for those who prefer) to find out how much the different businesses and organizations we've been talking with in Alexandria Bay/Oswego/Rochester/Niagara Falls interact with each other typically. We think this followup survey should only take a few minutes to complete. Would you be willing to participate in that?

IF YES: Could I have your email address? [If no email, get a mailing address.]

Thank you again. We hope the information we're gathering will help organizations that are concerned about the spread of aquatic invasive species.

END INTERVIEW

APPENDIX B: WEB-BASED SURVEY INSTRUMENTS

Local Businesses, Government, and Nongovernmental Organizations Working with Boaters and Anglers in Alexandria Bay

Cornell University is conducting a survey of local businesses, government agencies, and nongovernmental organizations in Alexandria Bay that may work or have contact with boaters and anglers (marinas, bait dealers, parks, local government, and environmental organizations). This survey follows up on a survey about aquatic invasive species that you (or someone else in your organization) responded to this past summer. The questions ask you how often you interact with other organizations in your community. Your answers will help us to find better ways of sharing information with organizations that work with boaters and anglers.

Your participation in this survey is voluntary, but we strongly encourage you to respond. A high response rate is needed for the results to accurately describe Alexandria Bay. The questionnaire should take about 10 minutes to complete.

Although information about your organization's interactions with others will be included in our results, that information will be based on data collected both from you and from others. In any reports we prepare based on this work, we will keep your name confidential and will not associate your individual responses with your name.

We'd like to know how often you interact with other organizations that may work or have contact with boaters and anglers in (and outside of) Alexandria Bay. During the past five years, how often have you interacted with individuals in each of the following organizations (for any reason)? (Check "N/A" for your own organization.)

- 1=Never interacted
- 2=Rarely interacted (no more than once a year)
- 3=Sometimes interacted (several times a year)
- 4=Frequently interacted (at least once a month)
- 5=Very frequently interacted (at least once a week)

	Have you interacted with individuals in this organization...					
	Never?			Very frequently?		
1000 Island Bait Store	1	2	3	4	5	N/A
Alexandria Bay Municipal Docks	1	2	3	4	5	N/A
Alexandria Bay Village Docks	1	2	3	4	5	N/A
Aqua-Mania	1	2	3	4	5	N/A
Back Bay Marine (Roger’s Marine)	1	2	3	4	5	N/A
Barton and Healy’s Cottages and Trailer Park	1	2	3	4	5	N/A
Bonnie Castle Resort & Marina	1	2	3	4	5	N/A
Capt. Thomson’s Resort	1	2	3	4	5	N/A
Cornell Cooperative Extension	1	2	3	4	5	N/A
Eastern Lake Ontario Salmon and Trout Association (ELOSTA)	1	2	3	4	5	N/A
EdgeWood Resort	1	2	3	4	5	N/A
Hi-Da-Way Cottages	1	2	3	4	5	N/A
Hills Motor Court	1	2	3	4	5	N/A
Hutchinson’s Boat Works	1	2	3	4	5	N/A
New York Sea Grant	1	2	3	4	5	N/A
NYS Department of Environmental Conservation	1	2	3	4	5	N/A
NYS Office of Parks, Recreation, and Historic Preservation	1	2	3	4	5	N/A
O’Brien’s Boat Rentals	1	2	3	4	5	N/A
Otter Creek Inn	1	2	3	4	5	N/A
Pinehurst Cottages and Motels	1	2	3	4	5	N/A
RC Congel North	1	2	3	4	5	N/A
Riveredge Resort	1	2	3	4	5	N/A
Save the River	1	2	3	4	5	N/A

	Have you interacted with individuals in this organization...					
	Never?			Very frequently?		
Swan Bay Estates & Marina	1	2	3	4	5	N/A
The Boardwalk Motel	1	2	3	4	5	N/A
Thousand Islands Country Club	1	2	3	4	5	N/A
Town of Alexandria	1	2	3	4	5	N/A
Van’s Motor Marine	1	2	3	4	5	N/A
Wagoner’s Marina	1	2	3	4	5	N/A

Thank you for your time!

**Local Businesses, Government, and Nongovernmental Organizations
Working with Boaters and Anglers
in Oswego**

Cornell University is conducting a survey of local businesses, government agencies, and nongovernmental organizations in Oswego that may work or have contact with boaters and anglers (marinas, bait dealers, parks, local government, and environmental organizations). This survey follows up on a telephone survey about aquatic invasive species that you (or someone else in your organization) responded to this past summer. The questions ask you how often you interact with other organizations in your community. Your answers will help us to find better ways of sharing information with organizations that work with boaters and anglers.

Your participation in this survey is voluntary, but we strongly encourage you to respond. A high response rate is needed for the results to accurately describe Oswego. The questionnaire should take about 10 minutes to complete.

Although information about your organization's interactions with others will be included in our results, that information will be based on data collected both from you and from others. In any reports we prepare based on this work, we will keep your name confidential and will not associate your individual responses with your name.

We'd like to know how often you interact with other organizations that may work or have contact with boaters and anglers in (and outside of) Oswego. During the past five years, how often have you interacted with individuals in each of the following organizations (for any reason)? (Check "N/A" for your own organization.)

- 1=Never interacted
- 2=Rarely interacted (no more than once a year)
- 3=Sometimes interacted (several times a year)
- 4=Frequently interacted (at least once a month)
- 5=Very frequently interacted (at least once a week)

	Have you interacted with individuals in this organization...					
	Never?		Very frequently?			
Cornell Cooperative Extension	1	2	3	4	5	N/A
Larry’s Oswego Salmon Shop	1	2	3	4	5	N/A
New York Sea Grant	1	2	3	4	5	N/A
NYS Department of Environmental Conservation	1	2	3	4	5	N/A
NYS Office of Parks, Recreation, and Historic Preservation	1	2	3	4	5	N/A
Olympia Sports	1	2	3	4	5	N/A
Oswego County Environmental Division	1	2	3	4	5	N/A
Oswego County Soil and Water Conservation District	1	2	3	4	5	N/A
Oswego Yacht Club	1	2	3	4	5	N/A
Port of Oswego Marina	1	2	3	4	5	N/A
Wright’s Landing/Oswego International Marina	1	2	3	4	5	N/A

Thank you for your time!

**Local Businesses, Government, and Nongovernmental Organizations
Working with Boaters and Anglers
in Rochester**

Cornell University is conducting a survey of local businesses, government agencies, and nongovernmental organizations in Rochester that may work or have contact with boaters and anglers (marinas, bait dealers, parks, local government, and environmental organizations). This survey follows up on a telephone survey about aquatic invasive species that you (or someone else in your organization) responded to this past summer. The questions ask you how often you interact with other organizations in your community. Your answers will help us to find better ways of sharing information with organizations that work with boaters and anglers.

Your participation in this survey is voluntary, but we strongly encourage you to respond. A high response rate is needed for the results to accurately describe Rochester. The questionnaire should take about 10 minutes to complete.

Although information about your organization's interactions with others will be included in our results, that information will be based on data collected both from you and from others. In any reports we prepare based on this work, we will keep your name confidential and will not associate your individual responses with your name.

We'd like to know how often you interact with other organizations that may work or have contact with boaters and anglers in (and outside of) Rochester. During the past five years, how often have you interacted with individuals in each of the following organizations (for any reason)? (Check "N/A" for your own organization.)

- 1=Never interacted
- 2=Rarely interacted (no more than once a year)
- 3=Sometimes interacted (several times a year)
- 4=Frequently interacted (at least once a month)
- 5=Very frequently interacted (at least once a week)

	Have you interacted with individuals in this organization...					
	Never?			Very frequently?		
Bay Creek Paddling Center	1	2	3	4	5	N/A
Bayside Boat & Tackle	1	2	3	4	5	N/A
Bayview Marina	1	2	3	4	5	N/A
Cornell Cooperative Extension	1	2	3	4	5	N/A
Dick’s Sporting Goods	1	2	3	4	5	N/A
Gander Mountain	1	2	3	4	5	N/A
Genesee Yacht Club	1	2	3	4	5	N/A
Gibbs Marina	1	2	3	4	5	N/A
Independent Marine Service	1	2	3	4	5	N/A
Irondequoit Bay Fish & Game Club	1	2	3	4	5	N/A
Jay-Ve Fishing Tackle	1	2	3	4	5	N/A
Mayer’s Marina Inc.	1	2	3	4	5	N/A
McMillan Marine	1	2	3	4	5	N/A
Mitchels Bait and Tackle	1	2	3	4	5	N/A
Monroe County Parks	1	2	3	4	5	N/A
Newport Marina	1	2	3	4	5	N/A
Newport Yacht Club	1	2	3	4	5	N/A
New York Sea Grant	1	2	3	4	5	N/A
NYS Department of Environmental Conservation	1	2	3	4	5	N/A
NYS Office of Parks, Recreation, and Historic Preservation	1	2	3	4	5	N/A
River Street Marina	1	2	3	4	5	N/A
Rochester Yacht Club	1	2	3	4	5	N/A
S&R Bait and Tackle	1	2	3	4	5	N/A

	Have you interacted with individuals in this organization...					
	Never?			Very frequently?		
Shumway Marine	1	2	3	4	5	N/A
Southpoint Marina	1	2	3	4	5	N/A
Sutter's Marina	1	2	3	4	5	N/A
Voyager Boat Sales	1	2	3	4	5	N/A

Thank you for your time!